

PATENT SPECIFICATION

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(54) AEROSOL EMOLLIENT

(71) We, PLOUGH INC., a corporation organised and existing under the laws of the State of Delaware, United States of America, of Memphis, Tennessee 38101, United States of America, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to spray compositions for use in pressure containers, particularly aerosol emollients. Some forms of sun-tan preparations, unguents, ointments, cosmetic and other topical products are commonly prepared with a soft buttery base, which appeals to users because of the feel and also because of the ease with which they are applied to a specific area and spread uniformly. Unsaturated vegetable oils are preferred and cocoa butter is often used, alone or in combination with other oils, fats, emollient ingredients, and cosmetically active and pharmacologically active ingredients in such products.

Aerosol containers are popular because of the ease with which the contents can be dispensed, and the absence of the mass and clutter of jars or tins and their closures.

It would seem a simple matter to charge an aerosol container with a mixture of propellant and cocoa butter or other lipoidal substance to produce a sprayable unguent. It has been found, however, that such a mixture produces a liquid spray which exhibits all of the disadvantages of a liquid lotion, in that it runs and does not give the unguent characteristics that many users seek.

Ways were therefore sought of providing a spray composition, which though in liquid form within the pressurized container permits discharge as a spray and deposits onto the human skin in the form of a soft buttery solid which is liquescent in the manner of solid cocoa butter or other lipoidal unguents.

In accordance with this invention, generally stated, there is provided a container containing a composition under pressure and having

a spray valve for dispensing it in the form of a spray, wherein the composition is an anhydrous cosmetically and/or pharmaceutically acceptable spray composition comprising (a) an oleaginous base which comprises a waxy material constituting at least 2.5% by weight of the composition and having a melting point lying in the range 120° F to 150° F and an oleaginous material constituted by an oil, and (b) a propellant in which the said materials are soluble, the composition being such that, when sprayed from the container, it deposits a buttery liquescent solid on a surface at human body temperature.

In the preferred compositions, the wax-like material is paraffin, and the range of amounts used is 5% to 50% by weight of the base portion of the aerosol container contents (excluding the propellant gas). The propellant gas is a mixture of Freon 11 and Freon 12 (Freon is a Trade Mark) and other oleaginous and active components are included to provide the unguent and functional characteristics of the desired product e.g. sun screening agents, active drug ingredients and perfume ingredients (for cosmetic preparations).

Other suitable wax-like materials include stearic acid, glyceryl monostearate, glyceryl monoesters, cetyl alcohol and stearyl alcohol. These organic acids, alcohols and esters are operative, but within required ranges, i.e. from about 5% to 50% by weight of the base. Isobutane is an example of an alternative propellant, and it has the advantage of requiring less gas by weight than the Freon.

Preferably, the base comprises, by weight, 50% cocoa butter, 5% coconut oil, 8% sun-screening agent, 10% paraffin wax, 26.5% mineral oil and taken together 0.5% of antioxidant, preservative and perfume.

The following examples of compositions of this invention are merely illustrative. In each case, the various ingredients of the base were mixed together and the propellant added in either liquid form or gaseous form under pressure.

[Price 25p]

Example 1 (Suntan Preparation)			Example 5 (Cosmetic Moisturizing Preparation)		
Base	Parts by weight		Contents of Aerosol Container	Parts by Weight	
5 Tenox (Trade Mark) II (anti-oxidant)	0.25		Cocoa Butter	7.500	60
Propylparaben (preservative)	1.00		Hydrogenated Oil	17.500	65
Cocoa Butter	250.00		Cetyl Alcohol	5.000	
Coconut oil	25.00		Coconut Oil	2.500	
10 Paraffin, m.p. 121—132° F.	50.00		Propylparaben	0.100	
Mineral Oil, Light (extender)	132.75		Mineral Oil, Light	7.350	70
Homomethyl Salicylate (sunscreen agent)	40.00		Perfume	0.050	
Perfume	1.00		Freon 11	30.000	
			Freon 12	30.000	
15 Contents of Aerosol Package	50.00		Example 6 (Emollient Preparation)		
Base	25.00		Contents of Aerosol Container	Parts by Weight	
Freon 11	25.00		Cocoa Butter	37.975	75
Freon 12			Glyceryl Monostearate	5.000	
			Coconut Oil	2.500	
20 Contents of Aerosol Container	Parts by Weight		Homomethyl Salicylate	4.000	80
Cocoa Butter	20.0		Propylparaben	0.500	
Coconut Oil	2.00		Tenox	0.025	
25 Paraffin, m.p. 121—132° F.	4.00		Freon 11	25.000	
Mineral Oil, Light	10.62		Freon 12	25.000	
Homomethyl Salicylate	3.20				
Tenox II	0.02				
Propylparaben	0.08				
30 Perfume	0.08		Example 7 (Suntan Preparation)		
Freon 11	30.00		Contents of Aerosol Container	Parts by Weight	
Freon 12	30.00		Cocoa Butter	10.000	85
			Hydrogenated Oil	10.000	90
35 Contents of Aerosol Container	Parts by Weight		Paraffin, m.p. 128—132° F.	8.000	
Cocoa Butter	12.500		Homomethyl Salicylate	3.200	
Hydrogenated Oil	12.500		Tenox II	0.020	
Coconut Oil	5.000		Perfume	0.080	95
40 Paraffin, m.p. 122—126° F.	3.750		Mineral Oil	8.620	
Tenox II	0.025		Propylparaben	0.080	
Propylparaben	0.100		Freon 11	30.000	
Mineral Oil, Light	16.125		Freon 12	30.000	
Freon 11	25.000				
45 Freon 12	25.000		Example 8 (Suntan Preparation)		
			Contents of Aerosol Container	Parts by Weight	
50 Contents of Aerosol Container	Parts by Weight		Cocoa Butter	14.000	100
Cocoa Butter	25.000		Coconut Oil	2.000	
Coconut Oil	2.500		Glyceryl Monostearate	10.000	105
Cetyl Alcohol	5.000		Homomethyl Salicylate	3.200	
Mineral Oil, Light	13.275		Tenox II	0.020	
Homomethyl Salicylate	4.00		Propylparaben	0.080	
55 Propylparaben	0.100		Perfume	0.080	
Perfume	0.100		Mineral Oil	10.620	110
Tenox II	0.025		Freon 11	30.000	
Freon 11	25.000		Freon 12	30.000	
Freon 12	25.000				

Example 9 (Suntan Preparation)			Example 13 (Suntan Preparation)		
Contents of Aerosol Container	Parts by Weight		Contents of Aerosol Container	Parts by Weight	
5 Cocoa Butter	10.000		Cocoa Butter	27.975	60
Hydrogenated Oil	10.000		Glyceryl Monostearate	15.000	
Glyceryl Monostearate	8.000		Coconut Oil	2.500	
Homomenthyl Salicylate	3.200		Homomenthyl Salicylate	4.000	65
Tenox II	0.020		Propylparaben	0.500	
10 Perfume	0.080		Tenox	0.025	
Mineral Oil	8.700				
Freon 11	30.000		Freon 11	25.000	
Freon 12	30.000		Freon 12	25.000	
Example 10 (Suntan Preparation)			Example 14 (Suntan Preparation)		
Contents of Aerosol Container	Parts by Weight		Contents of Aerosol Container	Parts by Weight	
15 Paraffin, m.p. 143—148° F.	5.000		Cocoa Butter	45.000	
Oil Soluble Sunscreen Agent	4.000		Coconut Oil	4.000	
Mineral Oil	39.900		Paraffin, m.p. 121—132° F.	14.000	75
Propylparaben	0.200		Mineral Oil, Light	20.620	
Butylparaben	0.800		Homomenthyl Salicylate	6.200	
Perfume	0.100		Tenox II	0.020	
Freon 11	25.000		Propylparaben	0.080	80
25 Freon 12	25.000		Perfume	0.080	
			Isobutane	10.000	
Example 11 (Topical Unguent)			<p>In addition to the "buttering" agents of the bases set forth in the Examples (paraffin, stearyl alcohol, cetyl alcohol and glyceryl monostearate), stearic acid in an amount between 10% and 25%, glyceryl monoesters (e.g. myverol type 18—40, a product of Distillation Products, Inc., melting point 142° F) in an amount between 10% and 25%, or agents with similar "buttering" properties may be used. As to "buttering" agents used in the Examples, stearyl alcohol, cetyl alcohol and glyceryl monostearate have a preferred use range of 10% to 25% of the base. The paraffins are somewhat extraordinary in this class of "buttering" agents in that they may be used in a range from about 4% to 50% of the base to provide a "buttering" effect. The paraffins employed are ordinary paraffins of the type used in sealing jelly glasses and for making candles. Among those tested have been Humble Oil Co., Esso (Standard Oil Company of New Jersey) and Quaker State Oil Company brands, with melting points ranging from 121° F. to 148° F. Paraffin from the same companies with melting points lower than 120° F or higher than 150° F have proved inoperative.</p> <p>In each of the Examples, the contents within the aerosol container are in liquid or gaseous-liquid form. Upon depressing the actuator button of the aerosol spray container, a very fine spray of the base component emerges in a typical aerosol spray pattern and deposits on the skin or any other surface in a fine, soft, buttery emollient solid which may then be spread over the skin or surface with the</p>		
Contents of Aerosol Container	Parts by Weight				
30 Paraffin, m.p. 133—135° F.	6.000				
Lanolin	2.000				
Coconut Oil	2.000				
Cocoa Butter	10.000				
Tenox II	0.020				
35 Butylparaben	0.080				
Perfume	0.080				
Hexadecyl Alcohol	19.820				
Freon 11	30.000				
Freon 12	30.000				
40 Any oily soluble topically useful drug or active component may be incorporated in place of part of the lipoidal ingredients.					
Example 12 (Suntan Preparation)					
Contents of Aerosol Container	Parts by Weight				
45 Stearyl Alcohol	5.000				
Coconut Oil	4.000				
Cocoa Butter	10.000				
50 Homomenthyl Salicylate	3.200				
Tenox II	0.020				
Propylparaben	0.080				
Perfume	0.080				
Mineral Oil	17.620				
55 Freon 11	30.000				
Freon 12	30.000				

hands in order to produce the desired emollient and covering action. The temperature of the body and act of spreading liquefies the buttery solid. Example 14 and preparations
 5 employing all higher melting components will, of course, require higher temperatures for spreading. The expression "depositing upon a surface at human body temperature in the form of a buttery liquescent solid" (or "as a
 10 buttery mass") is used in the specification and claims to describe an essential characteristic of the composition, but not to indicate that a deposit of the composition on a different surface from human skin or a surface at a
 15 different temperature from body temperature will not be a buttery liquescent solid or a buttery mass. In fact, a relatively cool surface will support the deposit of the buttery mass and the buttery mass is deposited as such on sur-
 20 faces hotter than the melting point of the wax-like component of the composition, perhaps because of the refrigerant effect of the expanding propellant. The preferred range of surface temperature is 60° to 120° F.

25 While the Examples do not span the complete range, it has been found that for paraffins within the range of melting points indicated, an amount between 2.5% and 25% by weight of the base-propellant combination is particularly satisfactory, while with the
 30 alcohols, acids and esters, the range is approximately 10% to 25%. As little as 10% (1 part to 9 parts base) of isobutane can be used as the propellant component, the overall preferred propellant to base weight ratio being
 35 9:1 to 4:6. Various *Freons* may be used as long as they are selected from among those that are miscible with the lipoidal and waxy base and in sufficient proportion to expel the contents. The relative amounts of *Freon* 11 and *Freon* 12 in the preferred embodiments can range from 30% to 70%, to 70% to 30%, particularly 40% to 60% to 60% to 40%.

45 It can be appreciated that the composition of this invention can be used for other purposes besides suntan emollient. It can be used for other cosmetic purposes, and can serve as a vehicle for various medicinal substances, such as hormones, antihistamines, antiseptics,
 50 anesthetics, keratolytic agents, surfactants or cleansing agents, or combinations of such ingredients, incorporating the ingredient by substituting it for a portion of the base components other than the wax-like "buttering"
 55 agent. Such active components will usually work best if they are soluble or miscible with the other components of the base, but they may also be liquids or solids that are homogeneously distributed and finely divided so that they will pass through the orifice of an
 60 aerosol valve.

65 It is to be noted that the operative wax-like "buttering" agents are generally crystalline in nature. Microcrystalline paraffins are inoperative.

In all of the Examples, the cocoa butter, coconut oil, mineral oil and hydrogenated oil are inoperative in the absence of the paraffin, higher alcohol, organic acid or ester. The latter appear somehow to trap the oils, to
 70 produce the buttery solid which is deposited on the skin. Contrary to what would seem logical, higher melting point materials, for example paraffin with a melting point higher than
 75 150° F., do not produce a buttery solid, but an oily liquid. Such materials as beeswax and spermaceti, which would seem logical "buttering" agents, are also inoperative.

In summary it will be seen that there has been described an anhydrous mixture or combination of oils, fats and waxes, components of which have a melting point in the range of 120° F. to 150° F. and which are miscible with a propellant gas and which when expelled from a pressurized aerosol container through a
 85 valve assembly forms a spray which deposits as a semi-solid matrix having the property of providing a buttery liquescent film on a surface. The buttery liquescent product discharged from the aerosol container remains in a semi-solid state until spread or rubbed out over larger areas such as the skin. The mixture within the aerosol container is in liquid form with a portion of the propellant gas in gaseous form.
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WHAT WE CLAIM IS:—

1. A container containing a composition under pressure and having a spray valve for dispensing it in the form of a spray, wherein the composition is an anhydrous cosmetically and/or pharmaceutically acceptable spray composition comprising (a) an oleaginous base which comprises a waxy material constituting at least 2.5% by weight of the composition and having a melting point lying in the range 120° F to 150° F and an oleaginous material constituted by an oil, and (b) a propellant in which the said materials are soluble, the composition being such that, when sprayed from the container, it deposits a buttery liquescent solid on a surface at human body temperature.
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2. A container according to claim 1, wherein the waxy material is paraffin wax, stearic acid, glyceryl monostearate, a glyceryl mono-ester, stearyl alcohol or cetyl alcohol.
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3. A container according to claim 2, wherein the waxy material is paraffin wax.

4. A container according to claim 3, wherein the paraffin wax constitutes between 5% and 50% by weight of the base.
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5. A container according to any one of the preceding claims, wherein the oleaginous material comprises an unsaturated vegetable oil.
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6. A container according to claim 5, wherein the unsaturated vegetable oil is cocoa butter or coconut oil.

7. A container according to claim 5 or 6

- wherein the oleaginous material additionally comprises mineral oil.
- 5 8. A container according to any one of the preceding claims, wherein the propellant is present in proportion to the base in the range of 90/10 to 40/60 by weight.
9. A container according to any one of the preceding claims, wherein the propellant consists of a mixture of Freon 11 and Freon 12.
- 10 10. A container according to claim 9, wherein the proportions of Freon 11 and Freon 12 are within the range 40/60 to 60/40.
11. A container according to any one of the preceding claims, wherein the base includes a sunscreensing agent.
- 15 12. A container according to any one of the preceding claims, wherein the base includes an active drug ingredient and/or a perfume ingredient.
13. A container according to claim 1 wherein the base comprises, by weight, 50% cocoa butter, 5% coconut oil, 8% sun-screensing agent, 10% paraffin wax, 26.5% mineral oil and, taken together, 0.5% of anti-oxidant, preservative and perfume. 20
14. A container containing a composition under pressure and having a spray valve for dispensing it under pressure in the form of a spray wherein the composition is substantially as described in any of the foregoing Examples. 25 30

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